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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER

PHAM, H	
ART UNIT	PAPER NUMBER

2861

DATE MAILED:

12/21/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Applicati n No.

09/392,626

Applicant(s)

MOGI ET AL.

Examiner

Hai C Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2000.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-7,9-11,13-15,17-19,21-23,25 and 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7,9-11,13-15,17-19,21-23,25 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 1999 is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☐ received.
2. ☐ received in Application No. (Series Code / Serial Number) _____.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 14) ☒ Notice of References Cited (PTO-892)
- 15) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 16) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 17) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 18) ☐ Notice of Informal Patent Application (PTO-152)
- 19) ☐ Other: _____.

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FINAL REJECTION

New Ground of Rejection

The Applicant's amendments of 10/13/00 necessitated a new ground of rejection as follows.

Drawings

1. Figures 1, 2A and 2B should be designated by a legend such as --PRIOR ART-- because only that which is old is illustrated. See MPEP § 608.02(g).

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 250 words. The form and legal phraseology often used in patent claims, such as "means," "said," "comprises," and "includes" should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

Therefore, it is suggested that "includes" at line 1 should be replaced, for example, by --has--.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1, 5, 6, 10, 11, 13, 15, 18, 19, 21, 23, and 26 are rejected under 35 U.S.C. 102(a) as being anticipated by Asami (JP 10-244707).

Regarding the base claims 1, 6, 11, and 19, Asami ('707) discloses an optical deflection-scan apparatus having all the limitations of the claimed invention. Asami's optical deflection-scan apparatus includes:

- A multi-beam semiconductor laser (semiconductor laser chip 1 with two luminescent points P_1 and P_2 , Figs. 2 and 4);
- A laser holder (11, Fig. 2) holding said multi-beam semiconductor laser;
- A multi-beam light source unit including said multi-beam semiconductor laser, said laser holder, and a rectangular laser driving circuit board (driving circuit board 14);
- Scanning imaging means (rotating polygon mirror 5, Fig. 1) for scanning a plurality of laser beams emitted by said multi-beam semiconductor laser to form an image on a surface to be scanned (photosensitive drum 7);
- A housing (optical box 10, only part of which is shown) comprising a sidewall with a longitudinal edge (Fig. 3), and supporting said scanning image means (the optical box being defined as the housing of the scanning apparatus and thus inherently supporting the polygon mirror) and said multi-beam light source unit, with said multi-beam light source unit being fixed to said sidewall of said housing (Fig. 3) and a longitudinal edge of said rectangular laser driving circuit board being generally

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parallel with said longitudinal edge of said sidewall (Fig. 6 showing the longitudinal edge of the rectangular circuit board 24 being parallel to that of the optical box 20);

- Said multi-beam semiconductor laser being fixed to said holder with an inclination at or near a predetermined rotational angle for adjusting a beam interval between the plurality of laser beams and the plurality of emission points of said multi-beam semiconductor laser being aligned along a line inclined with respect to said longitudinal edge of said sidewall (see abstract and also Fig. 4.)
- As to claims 11 and 19, fixing means (the pair of screws 17 and the protruding pin 10a, Fig. 3) for fixing said multi-beam light source unit to said housing, said fixing means having a plurality of fixing portions (17 and 10a);
- Again as to claims 11 and 19, the multi-beam light source unit having a center of rotation (a central point between the luminescent points P_1 and P_2 , Fig. 4), said plurality of fixing portions comprising at least three fixing portions (17, 17 and 10a), and the center of rotation and the plurality of emission points of the multi-beam semiconductor laser being located in a planar region (12, Fig. 3) defined by straight lines connecting said at least three fixing portions (Figs. 3 and 4.)

With regard to claims 13 and 21, Asami ('707) further discloses said fixing means having a fixing portion fastened by a screw (screws 17, Fig. 3).

With regard to claims 15 and 23, Asami ('707) further discloses said multi-beam semiconductor laser having a plurality of aligned emission points (luminescent points P_1 and P_2 , Fig. 4.)

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With regard to claims 5, 10, 18, and 26, Asami ('707) further teaches said holder being integrated with a lens barrel (13, Fig. 2) holding a collimator lens (2).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asami ('707) in view of Aoki (U.S. 5,408,493).

Asami ('707) discloses all the basic limitations of the claimed invention except for the laser array being fixed with an inclination with respect to a reference surface of said laser holder.

However, Aoki discloses a laser scanning apparatus in which the laser (6, Fig. 4B) has an angle adjusting holder (12) for adjusting an inclination angle with respect to the fixed plate (11) to obtain a desired point image position on the surface to be scanned.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Asami ('707) with the aforementioned teaching of Aoki. Doing so would allow the adjustment of the optical

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path of the laser beam to produce an image point at a desired position on the surface to be scanned.

7. Claims 4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asami ('707) in view of Nakajima et al. (U.S. 5,999,345).

Asami ('707) discloses all the basic limitations of the claimed invention except for the multi-beam semiconductor laser having a plurality of two-dimensionally arrayed emission points.

However, it is well known in the art that the selection of one-dimensional or two-dimensional array lasers in an optical scanning device would be a matter of design choice to fit a specific requirement. Nakajima et al., for example, discloses a laser holder that can support a one-dimensional or two-dimensional laser array while allowing the adjustment of the distance between the multiple laser beams (Figs. 1, 3, 5 and 6).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the laser holder of Asami ('707) to hold a plurality of two-dimensional laser arrays as taught by Nakajima et al. Doing so would allow to increase the printing speed of the laser printer. Moreover, the implementation of such laser holder would involve only routine skill in the art.

8. Claims 14, 17, 22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asami ('707) in view of Asami (JP 9-243944).

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Asami ('707) discloses all the basic limitations of the claimed invention except for the fixing portion adhering with an adhesive and an adjustment member for adjusting a position of the multi-beam semiconductor laser.

However, Asami ('944) discloses an optical scanning device in which, in one embodiment, the laser holder (22, Fig. 2) is fixed to the optical box (11) with an adhesive, and, in another embodiment, the laser holder is fixed to the optical box through an adjustable structure (32, Fig. 3) to allow an adjustment of the position of the semiconductor laser (21).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Asami ('707) with the aforementioned teachings of Asami ('944). Doing so would allow either to secure the laser source to the optical box after the adjustment or to flexibly adjust the position of the laser source whenever it is required.

Response to Arguments

9. Applicant's arguments with respect to claims 1-26 have been considered but are moot in view of the new grounds of rejection as stated above.

Asami et al. ('447) is not used in this Office action since the Applicants have changed the scope of the base claims 1 and 6 by adding new subject matters, namely "a rectangular laser driving circuit board" and "multi-beam semiconductor laser ... inclined with respect to the longitudinal edge of said rectangular laser driving circuit

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board." A new reference, Asami ('707), is used in this Office action. The teaching of the new prior art is in the same line as the previous reference. In the assumption that the Applicants would present the same arguments against Asami ('707) as the Applicants did to Asami et al. ('447), namely "Asami et al. document fails to disclose or suggest at least the features of a multi-beam light source unit being fixed to a sidewall of a housing and a longitudinal edge of a rectangular laser driving circuit board being generally parallel with the longitudinal edge of the sidewall," the Examiner respectfully disagrees. Asami ('707) discloses a plurality of light emitting elements (P1 and P2) being inclined with respect to the horizontal line, which is representative of the longitudinal edge of both the optical box and the laser driving circuit board. Thus Asami ('707) clearly discloses the plurality of light emitting elements being inclined with respect to the longitudinal edge of said rectangular laser driving circuit board. Moreover, Asami ('707) discloses the laser source unit (12) fixed to the sidewall of the optical box (10), as shown in Fig. 3. Asami ('707) further discloses the longitudinal edge of the laser driving circuit board (24) being parallel to the longitudinal edge of the optical box (Fig. 6.) With regard to the base claims 11 and 19, Asami ('707) also teaches 3 fixing portions, namely the two screws (17, Fig. 3) and the protruding portion (10a). The three fixing portions surround the cavity into which the laser chip (1) is inserted such that the region formed by the lines connecting the three fixing portions would enclose the laser chip.

Conclusion

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10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

Hai C Pham

hcp
December 18, 2000

N. Le

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Supervisory Patent Examiner
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